Predication and semantic reinterpretation in relativization*

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1. Introduction

The relative clause constructions present a variety of interesting syntactic phenomena, one of which is the so-called countercyclic/late Merge effect. This is illustrated by the contrast in the availability of coreference interpretation of *he* and *John* between the following pair of sentences cited from Lebeaux (1988, 1991).

(1) a. which claim [that John$_i$ made] did he$_i$ later deny
b. *which claim [that John$_i$ was asleep] did he$_i$ later deny

Lebeaux (1988, 1991) approaches this asymmetry in terms of different nature of the post-nominal *that*-clauses in (1a, b). In the appositive construction in (1b), the post-nominal *that*-clause serves as an argument of the nominal head *claim*. Given the standard assumption that arguments cannot be introduced countercyclically, the whole complex *which claim that John was asleep* must first generate in the complement position of the main verb *deny*. Then, at a later stage of the derivation when *he* is introduced as an external argument of *deny*, it binds its antecedent *John*, in violation of the Binding Condition (C). In (1a), on the other hand, the relevant *that*-clause is a relative clause, which is an instance of adjuncts. Lebeaux proposes that adjuncts can be introduced countercyclically unless it causes inadequacy in other areas of the grammar. To be more specific, in (1a), the relative clause may be adjoined to *which claim* after the latter has undergone *wh*-movement; at no stage of this specific derivation does *he* c-command *John*, hence the availability of

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coreference interpretation.

This "countercyclic/late Merge" analysis of relative clauses has ever since been widely accepted among linguists (cf. Epstein et al. (1998)), but the underlying view that relative clauses are adjuncts has not been uncontroversial at all in the generative literature. Thus, Schachter (1973), Kayne (1994), Safir (1999), among others, argue for the so-called head-promotion analysis of relative clause formation, according to which the external head of a relative clause originates from a position in the relative clause:

(2) books [$_{CP}$ John bought t]

Since the external head (*books*) has to be first introduced into the complement position of *bought*, a countercyclic/late Merge analysis of relative clauses is impossible in this framework. And in fact, this head promotion analysis receives evidence from a variety of syntactic phenomena, which we will review quickly in section 2. But the countercyclic/late Merge effect we saw in (1a) above apparently goes against the head promotion analysis because, the relative clause being unable to be introduced countercyclically, the whole nominal expression (*which claim that John made*) has to first appear in the complement position of the matrix verb *deny* and then has its constituent *John* c-commanded by *he* when the latter is introduced as the external argument of the verb, yielding an unexpected violation of the Binding Condition (C):

(3) he$_i$ later deny [which claim that John$_i$ made]

These empirical considerations may suffice to show that a satisfactory explanation of relative clause formation has not been provided yet. The present paper pursues the head promotion analysis, partly because the empirical evidence for the head promotion analysis mentioned above is so robust that we cannot maintain the view that relative clauses are introduced syntactically as modifiers (adjuncts) to the external nominal heads, and partly because there is another piece of evidence that suggests that the countercyclic/late insertion is not an option made use of exclusively by adjuncts, which means that the contrast in the availability of coreference interpretation of *John* and *he* in (1a,b) above is not a *direct* consequence of the contrast in the availability of counter-

cyclic/late Merge between the relative clause and the appositive argumental *that*-clause. We follow Tomizawa (2003a, 2003b) in assuming the Generalized Copy Theory, which provides a theoretical foundation for the framework that allows *apparent* countercyclic/late Merge of both adjuncts and arguments in a linguistic theory that is free from countercyclic/late Merge operations,[1] and propose that since such apparently countercyclic/late Merge configurations contain within them a constituent that has not been fully identified in the relevant structure, they must undergo semantic reinterpretation, which we refer to as the Reinterpretation Principle:

(4) The Reinterpretation Principle
A syntactic object that has undergone apparently countercyclic/late Merge must be semantically reinterpreted.

Semantic identification of apparent countercyclic/late Merge configurations is achieved by either θ-role assignment or the Predication Rule, a rule available "free" in C_{HL} primarily for interpretation of adjunction structures and applicable when a syntactic structure is constructed that has been motivated neither by formal-feature checking nor by semantic Reinterpretation/licensing. We claim that the contrast between (1a) and (1b) is due to the property that in (1a) the apparently countercyclic/late Merge configuration meets the Reinterpretation Principle in terms of the Predication Rule, but in (1b) such a configuration fails to satisfy the Reinterpretation Principle.

The paper is organized as follows. In Section 2, we quickly review the properties of the head promotion analysis and make clear the problems the analysis has to solve. In Section 3, we first introduce the Generalized Copy Theory and illustrate its mechanism; and then move on to the proposals of the Reinterpretation Principle and the Predication Rule to show that these systems provide an account to the problems to the head promotion analysis. Section 4 deals with some consequences of our proposal that range from *wh*-movement to topicalization and A-movement. Section 5 is the conclusion of the paper.

1 "Apparent," because in the Generalized Copy Theory, countercyclic/late Merge configurations in light of the traditional framework are obtained without appealing to real countercyclic/late Merge operations.

2. Evidence for and against the head promotion analysis

In this section, we first review empirical evidence for the head promotion analysis of relative clause formation. The first evidence comes from the availability of referential dependency between a quantified expression in a relative clause and a pronominal expression in the external head position:

(5) the book on her$_i$ desk [that [every professor]$_i$ liked t best] (Citko (2000))

Generally speaking, bound pronoun interpretation is obtained when the pronoun is c-commanded by its antecedent quantificational DP. According to the head promotion analysis, this requirement is met in the above example at the stage of the derivation when the external head including the bound pronoun *her* occurs in its original position in the relative clause, namely, the complement position of *liked*. If we took an analysis other than the head promotion analysis, on the other hand, this interpretation would remain unaccounted for because the required c-command configuration is not obtained.

The second evidence is concerned with the availability of idiomatic interpretation of, for example. *make headway* in the sentence in (6a) below.

(6) a. the headway [that we made t] was satisfactory (Cikto (2000), Schachter (1973))
b. *the headway pleased her boss

Under the head promotion analysis, the external head of the relative clause originates in the complement position of *made*, so that an adjacency condition on idiom chunks is satisfied there. If, on the other hand, the relative clause were externally adjoined to the external head, no adjacency configuration could be obtained of *headway* and *made* throughout the derivation; hence, the idiomatic interpretation would be expected to be unavailable for (6a), contrary to fact.

Another evidence for the head promotion analysis is provided by the availability of anaphor binding. Thus, in (7), *each other* within the external head may be interpreted as referentially dependent on *John and Mary* in the relative clause subject position.

(7) the interest in [each other]$_i$ [that [John and Mary]$_i$ showed t]

(Citko (2000), Schachter (1973))

Note that there is good evidence to believe that an anaphor and its antecedent form a syntactic complex at an initial stage of the derivation and then the complex is introduced to an argument position, from which the antecedent is extracted to move into another argument position (see Tomizawa (2003a, 2005) and Zwarts (2002)). For example, the derivation for the sentence in (8) proceeds as in (9a-g).

(8) replicants of themselves$_i$ seem to [the boys]$_i$ to be ugly (Johnson (1984))

(9) a. [the boys, themselves]
b. [$_{DP}$ replicants of [the boys, themselves]]
c. [$_{SC}$ [$_{DP}$ replicants of [the boys, themselves]] ugly]
d. [$_{IP}$ [$_{DP}$ replicants of [the boys, themselves]] to be [$_{SC}$ t$_{DP}$ ugly]]
e. [$_{VP}$ seem [$_{IP}$ [$_{DP}$ replicants of [the boys, themselves]] to be [$_{SC}$ t$_{DP}$ ugly]]]
f. [$_{VP}$ [(to) the boys] [$_{VP}$ seem [$_{IP}$ [$_{DP}$ replicants of [~~the boys,~~ themselves]] to be [$_{SC}$ t$_{DP}$ ugly]]]]
g. [$_{TP}$ [$_{DP}$ replicants of [~~the boys,~~ themselves]] T [$_{VP}$ [(to) the boys] [$_{VP}$ seem [$_{IP}$ t$_{DP}$ to be [$_{SC}$ t$_{DP}$ ugly]]]]]

The anaphor and its antecedent form a syntactic complex as in (9a), which is introduced to a complement position of *replicants*, as in (9b). The whole nominal expression then merges with *ugly* to form a small clause as in (9c), followed by raising to the embedded infinitival subject position as in (9d). Next, this infinitival clause merges with the matrix verb *seem* as in (9d), and then *the boys* moves out of the anaphor/antecedent complex into the Theme argument position of *seem* as in (9f). The remnant DP constituent in the embedded subject position raises to the matrix subject position, as in (9g). This analysis of anaphor binding neatly accounts for the fact that a similar derivation is impossible in the following raising structures.

(10) a. *[John and Mary]$_i$ seem to many friends of [each other]$_i$ to be honest
b. *[John and Mary]$_i$ seem to [each other]$_i$'s parents to be honest

Consider the derivation of (10a). The antecedent *John and Mary* forms an anaphor/

antecedent complex with *each other* as in (11a) below. This complex is inserted into the subject position of *honest* as in (11b), and then moves into the embedded infinitival subject position as in (11c). This infinitival clause merges with *seem* as in (11d); this operation is followed by introduction of the Theme argument of *seem*. Since the Theme argument is *many friends of each other*, we have to move *each other* in the infinitival subject position to the complement position of *many friends* as in (12d). This operation is impossible, however, and the derivation crashes.

(11) a. [J&M, each other]
b. [$_{SC}$ [J&M, each other] honest]
c. [$_{IP}$ [J&M, each other] to be [$_{SC}$ t honest]]
d. [$_{VP}$ seem [$_{IP}$ [J&M, each other] to be [$_{SC}$ t honest]]]
e. [$_{VP}$ [(to) many friends [(of) each other]] [$_{VP}$ seem [$_{IP}$ [J&M, ~~each other~~] to be [$_{SC}$ t honest]]]]

The derivation for the sentence in (10b) is similar in the relevant respect.[2]

Returning to the relative clause construction in (7), the derivation for the structure converges under the head promotion analysis, because the anaphor/antecedent complex, [J&M, each other], first appears in the complement position of *interest*, as illustrated in (12a) below. The whole DP structure is inserted into the complement position of *showed* as in (12b). At the next step, *John and Mary* is extracted out of the anaphor/antecedent complex into the Agent argument position of *v* as in (12c). At some stage of the derivation that follows, a CP structure is formed and the DP *(the) interest [(in) J&M, each other]* is extracted to occupy the external head position as in (12d).

(12) a. [$_{DP}$ (the) interest [(in) J&M, each other]]
b. [$_{VP}$ showed [$_{DP}$ (the) interest [(in) J&M, each other]]]
c. [$_{vP}$ J&M *v* [$_{VP}$ showed [$_{DP}$ (the) interest [(in) ~~J&M~~, each other]]]]
d. [the interest [(in) J&M, each other] [$_{CP}$ … J&M *v* [$_{VP}$ showed t$_{DP}$]]

2 Note that in both (10a) and (10b) we could insert the anaphor/antecedent complex into the complement position of *many friends* and the genitive subject position of *parents* as in (ia) and (ib), respectively.
(i) a. [many friends [(of) J&M, each other]]
b. [[J&M, each other] 's parents]
These derivations would require us to "lower" *John and Mary* to the subject position of the small clause headed by *honest*. Therefore, they do not converge, either.

Hence, the binding fact in (7) is correctly explained under the head promotion analysis. But if we took the position that the relative clause were simply adjoined to the external head, the coreference interpretation could not be captured.

The fourth argument for the head promotion analysis is presented by the distribution of negative polarity item *ever*. Tanaka (2005) argues that the differences in the position of *ever* in the following sentences are due to raising of the element.

(13) a. I was the first in my family [$_{CP}$ to ever go to college]
b. Safin could become the youngest player [$_{CP}$ ever to finish the year as No.1 in the world]
c. Michael Chang was the youngest ever player [$_{CP}$ to win at Roland Garros]

He follows the head promotion analysis in assuming that in these infinitival relatives, the external heads move out of the relative clauses, and proposes that in (13a) *ever* stays around the internal subject position of the promoted head, while in the other two examples, *ever* raises up to the embedded subject position in the former and out of the relative clause in the latter. This analysis makes crucial use of the head promotion analysis.

These syntactic phenomena constitute robust evidence for the head promotion analysis. But the analysis is not without problems. One of them is the explanation of the lack of the Binding Condition (C) effects we saw in Section 1. Actually, this problem arises in two slightly different configurations. One is what we saw there, repeated here as (14).

(14) Relative clauses vs. appositive clauses
a. which claim [that John$_i$ made] did he$_i$ later deny
b. *which claim [that John$_i$ was asleep] did he$_i$ later deny (=(1))

Under the head promotion analysis of relative clause formation, *which claim that John made* must be inserted into the complement position of *deny* in (14a), just as the complex nominal containing an appositive clause in (14b) does. As a result, both of the derivations would be expected to be in violation of the Binding Condition (C), contrary to fact. Here, the explanation must take into consideration the distinction between relative clauses and appositive clauses. The second configuration in which the problem arises is illustrated by

the contrast in grammaticality between (15a) and (15b).

(15) Relativization vs. *wh*-interrogative
a. the picture of John$_i$ [that he$_i$ saw t in the paper]
b. *which picture of John$_i$ [did he$_i$ see t in the paper]

Here, the R-expressions in the complement positions of *picture* give rise to a violation of the Binding Condition (C) if the DP headed by the *picture* noun is an interrogative *wh*-phrase, but not if it is an external head of a relative clause. The contrast requires us to consider the difference between relativization and *wh*-interrogation.

The relative/appositive distinction and relativization/*wh*-interrogation distinction are viewed differently in Lebeaux's (1988, 1991) countercyclic/late Merge analysis, where he appeals to an adjunct property of relative clauses, namely, that relative clauses, belonging to the class of adjuncts, can be licitly introduced countercyclically. We cannot adopt this characterization of relative clauses, simply because the head promotion analysis defines them as elements that are not pure adjuncts.[3]

In addition to this consideration, there is a stronger argument against the countercyclic/late Merge analysis by Lebeaux (1988, 1991) and others from considerations of computational efficiency, namely, that countercyclic/late Merge operations are computationally too complex to maintain as an ingredient of C_{HL}. Chomsky (2004) initiates an inquiry along this line and claims that there is no countercyclic/ late Merge processes by proposing that the lack of the Binding Condition (C) effects in (14a) and (15a) is due to the syntactic invisibility of adjuncts of which relative clauses are instances. His system can be summarized as follows.

(16) a. Relative clauses are instances of adjuncts.
a. Adjuncts are syntactically invisible.
b. Syntactically invisible adjuncts become visible after they undergo the rule of SIMPL.
c. SIMPL is an optional component of TRANSFER, so that its application is optional.
d. SIMPL is in effect part of Spell-Out, so that it does not apply to traces.

3 But not arguments, either. Intuitively speaking, relative clauses are predicates.

To illustrate how this system works, consider the derivation of (17), where our interest lies in the coreference interpretation of *John* and *he*.

(17) which picture of Bill [that John$_i$ liked t] did he$_i$ buy t

The relative clause adjoins in a cyclic fashion to the external head to form the structure in (18a) below. This complex nominal expression merges with *buy* as in (18b), and then the whole verbal phrase undergoes merger of *he*, as in (18c). Notice here that *John* apparently occurs in the c-commanding domain of *he* but the relative clause including *John* is by definition invisible syntactically, so that the configuration in (18) does not violate the Binding Condition (C). At a later stage of the derivation, the *wh*-phrase undergoes *wh*-movement, yielding the structure in (18d).

(18) a. [which picture of Bill [that John$_i$ likes t]]
b. [buy [which picture of Bill [that John$_i$ likes t]]]
c. [he$_i$ [$_{VP}$ buy [which picture of Bill [that John$_i$ likes t]]]]
d. [which picture of Bill [that John$_i$ likes t]] did [he$_i$ [$_{VP}$ buy *WH*]]

After these operations, the structure undergoes TRANSFER. To be more specific, Spell-Out maps the structure to the PF component. Since linearization is required in the derivation to the A-P interface, SIMPL applies in accordance with Spell-Out (see (16d) above). Application of SIMPL to the relative clause in the moved *wh*-phrase contributes to the generation of the linear order *which-picture-of-Bill-that-John-likes-did-he-buy*. On the other hand, SIMPL does not apply to the original *wh*-phrase in the complement position of *buy*, because the *wh*-phrase lacks phonological contents. In this sense, SIMPL is an optional rule (see (16c, d)). In the mapping to the C-I interface, on the other hand, SIMPL does not apply, because by definition, it is an optional constituent of Spell-Out (see (16d)).[4]

This explanation seems to work well in this kind of non-disjoint reference configuration, but it has difficulties in the treatment of coreference configuration. Consider (19), where *he* may be referentially dependent on *every student*.

4 The reason for this assumption seems to be due to the following considerations. Although phonologically null, the *wh*-phrase in the complement position of *buy* has a full-fledged internal structure. Thus, if SIMPL were to apply in the LF-side derivation, it would incorrectly result in the matrix subject *he* binding its antecedent *John* that appears in the phonologically null *wh*-complement of *buy*.

(19) [which paper [that he$_i$ gave to Bresnan]] did [every student]$_i$ think that she would like *WH* (Lebeaux (1991))

For the bound pronoun interpretation to be available, the pronoun must be c-commanded by *every student*. This is made possible only with recourse to the trace of the *wh*-phrase (= *WH*). Thus, in (19), the internal structure of the phonologically null *wh*-trace must be made visible. This means that the relative clauses occurring in *wh*-traces must undergo SIMPL in light of bound pronoun interpretation but they may not in light of the Binding Condition (C). This is a contradictory requirement; hence we conclude that Chomsky's analysis is untenable, though the aim to pursue a system that is free from countercyclic/late Merge operations is welcome.

To summarize the discussion in this section, although the head promotion analysis has difficulties in accounting for the lack of the Binding Condition (C) effects, it is worth pursing, given the general framework that is free from countercyclic late Merge operations.

3. Proposals: The Generalized Copy Theory and the Reinterpretation Principle

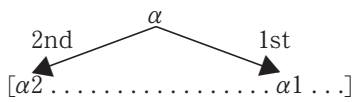
In this section, we present an account of the lack of the Binding Condition (C) effects within the framework that does not permit countercyclic/late merger. In Section 3.1, we introduce the Generalized Copy Theory, which captures the apparent countercyclic/late Merge effects without recourse to real countercyclic operations. Section 3.2 introduces the Reinterpretation Principle and the Predication Rule, which are mechanisms responsible for the licensing of structures that have resulted from such apparent countercyclic/late Merge operations. In Sections 3.3 and 3.4, we show that our analysis correctly accounts for both the relative/appositive distinction and the relativization/*wh*-interrogation distinction in light of the obviation of the Binding Condition (C) effects.

3.1. The Generalized Copy Theory and the countercyclic late Merge effects

Departing from the traditional conception of syntactic merger, which consists of internal Merge and external Merge, we assume that there is only one type of Merge, namely, external Merge. In this conception of merger, movement of α can be reconsidered as remerger of α (see Tomizawa (2003a, 2003b), Bobaljik (1995), Bobaljik & Brown (1997)).

This could be illustrated in (20), where in the traditional terminology α forms a two-membered chain (α2, α1).

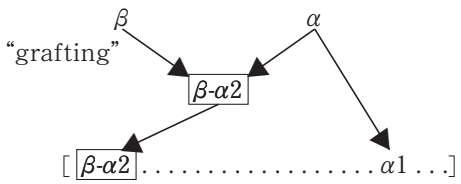
(20)



In this derivation, movement of α is not achieved by internal Merge, but by two applications of external Merge: the first application of external Merge creates a copy of α, which we refer to as α1 for convenience' sake, and introduces it into the relevant structure, while the second application of external Merge creates another copy of α, namely α2, and merges it with the relevant structure. In this conception of Merge, every application of Merge, be it movement or not, creates a copy, hence the name "Generalized Copy Theory ".

The Generalized Copy Theory makes it possible to create an apparent countercyclic/late Merge configuration without recourse to real countercyclic/late Merge operations. Consider the following derivation.

(21) Countercyclic late Merge effects



Here, the second copy of α, namely α2, merges with β, before it is introduced into a structure that includes in it its first copy (α1). Let us call this merger of β and a second copy of α "grafting" for convenience's sake: grafting of β by α. Grafting is licit in light of the Generalized Copy Theory. In addition, it is not a countercyclic/late Merge operation, because when the copy of β and α2 are merged (grafted) the operation creates a root node [β-α2], whose copy is merged with an independently created structure that includes α1. Notice here that the structure in (21) is the one traditionally considered a countercyclically created adjunction structure. Therefore, the adoption of the Generalized Copy

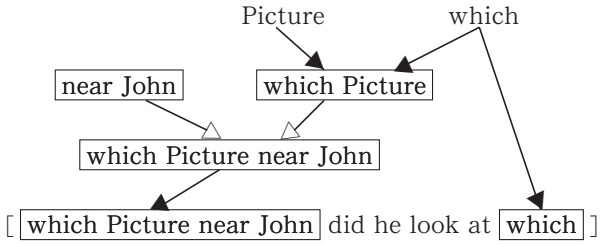
Theory allows us to generate an apparent countercyclic/late Merge configuration within the framework that is free from countercyclic/late Merge operations.

Let us now apply this system to the derivation of the sentence in (22).

(22) [which pictures [near John]] did he look at t (Lebeaux (1991))

The derivation for this sentence may proceed as follows.

(23)

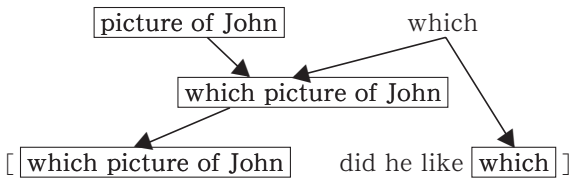


The first copy of *which* merges with *look at*, while its second copy merges with *picture* to form a noun phrase *which picture*, which is grafted by the adjunct PP *near John* before the whole complex merges with *did he look at which*. What is important in light of the present discussion is that at no stage of the derivation does *he* c-command *John*. Therefore, coreference interpretation of *he* and *John* is correctly expected.

Interestingly, the Generalized Copy Theory allows grafting of not only adjuncts (such as *near John* in (23)) but also arguments. This is equivalent to saying in the traditional terms that arguments can be introduced countercyclically. Thus, the following sentence may have the derivation illustrated in (25).

(24) ?*which picture of John$_i$ did he$_i$ like (Lebeaux (1991))

(25)



The *wh*-element *which* has its first copy inserted into the complement position of *like*,

while its second copy is inserted into Spec-CP after it is grafted by *picture of John*. This derivation does not violate any conditions/principles we have assumed so far, and crucially *John* is not c-commanded by *he* at any stage of the derivation. Hence, the ungrammaticality of the sentence must lie not in the argumenthood but in other aspects of the construction, to which we will turn in the next section.

To summarize, we follow Tomizawa (2003a, 2003b) in assuming the Generalized Copy Theory, which allows for apparent countercyclic/late Merge configurations without recourse to real countercyclic late merger. Given this theory, apparent countercyclic/late merger is possible not only with adjuncts but also with arguments, to which we will turn in Section 4.

3.2. The Reinterpretation Principle and Predication Rule

The source of the ungrammaticality of the sentence in (24) lies in the Principle of Full Interpretation. To make the point clear, let us consider the derivation that is not affected by the Binding Condition (C), such as (26) below.

(26) which book did you buy

The sentence has two essentially different derivations. One is illustrated in (27a), where *which* and *book* merge to form a *wh*-phrase and the first copy of the *wh*-phrase is inserted in the complement position of *buy* and the second copy into Spec-CP. In the derivation given in (27b), on the other hand, the first copy of *which* alone is introduced into the complement position of *buy* and the second copy is inserted in Spec-CP after grafted by *book*.

(27) a. [which book] did you buy [which book]
b. [which book] did you buy [which]

The interpretations obtained from these derivations are different from each other. In (27a), *which book* serves as the Theme argument of *buy*; hence, the semantics of the relevant structure contains the information of book-buying. In (27b), on the other hand, *book* does not have direct semantic interaction with *buy*; its sole relation is with *which*. This relation is not semantic in nature. The interpretation of *book* in (27b) might be

viewed as that of, say, "this book" in a left-dislocation configuration "This book, I really like it ", if it is semantically interpretable at all. Thus, the grafted derivation in (27b) does not provide the semantics of the sentence in (26).

These considerations suggest that grafting structures satisfy an independent semantic requirement, which we formalize as in (28).

(28) The Reinterpretation Principle
Given β = a graft and α = the "host," the grafted structure [α β] must be interpreted either internally or externally.
a. The grafted structure is interpreted internally, if α is interpreted by β.
b. The grafted structure is interpreted externally, if [α β] is interpreted by an external element.
c. Interpretation is either through θ-role-assignment or semantic feature licensing or The Predication.

(29) The Predication Rule:
a. is available "free" in C_{HL}, primarily for interpretation of adjunction structures (modification),
b. applies when the relevant structure is motivated neither by formal-feature-checking nor by semantic interpretation/licensing nor by selection.

Returning to (27b), the grafted structure [which book] is motivated by D-N selection. D-N selection is not sufficient for the structure to be directly interpreted internally, nor is it sufficient to call for the Predication Rule to achieve the required internal interpretation. Hence, the structure is not semantically licensed by the internal interpretation. As for the external interpretation, the grafted structure merges with [did you buy which]; this operation is motivated by a *wh*-feature on C. Since the feature is a formal feature, it neither interprets the structure externally, nor allows the Predication Rule to apply to it. As a result, the structure fails to satisfy the option of external interpretation. Therefore, the derivation in (27b) does not satisfy the Reinterpretation Principle.

A similar violation occurs in the derivation of (25) above. The grafting of *picture of John* to *which* is motivated by D-N selection. Therefore, the structure is not internally interpreted. The merger of the whole grafted structure *which picture of John* with [$_{CP}$ did he like which] is motivated by a *wh*-feature on C. Therefore, the grafted structure cannot be

interpreted externally by CP. As a result, the structure fails to satisfy the Reinterpretation Principle.

Unlike (25), the derivation in (23) satisfies the Reinterpretation Principle, because the grafting of *near John* to *which picture*, which is not motivated by any of formal-feature checking, semantic interpretation/licensing and selection, calls for application of the Predication Rule. Therefore, the structure is internally interpreted and as a result satisfies the Reinterpretation Principle.

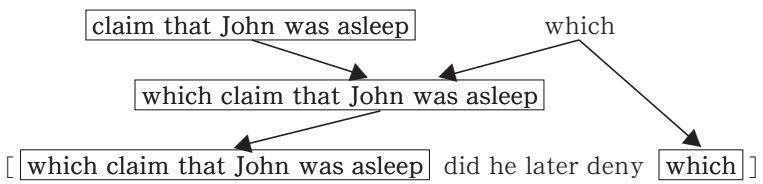
3.3. Relative clauses vs. appositive clauses (adjunct/complement asymmetry)

Let us now consider how our system deals with the contrast between relative clauses and appositive clauses in (14a,b), reproduced here as (30a,b).

(30) a. which claim [that John$_i$ made] did he$_i$ later deny
b. *which claim [that John$_i$ was asleep] did he$_i$ later deny (=(14))

While in the traditional framework, the appositive clause cannot be introduced countercyclically, our analysis claims that apparent countercyclic/late Merge effects are in principle allowed with arguments. It is our burden to show that (30b) is impossible in a derivation with grafting. Such an imaginary derivation looks like (31).

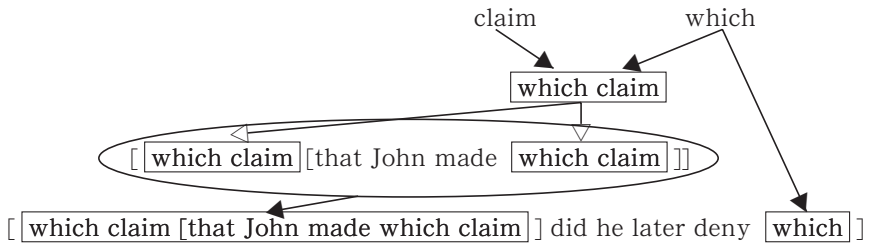
(31) Derivation for (30b)



In this derivation, grafting of [claim that John was asleep] to *which* is motivated by D-N selection, so that the structure is not internally interpreted. The merger of the grafted structure with [did he later deny which] does not undergo external interpretation, either, because the merger is motivated by a *wh*-feature. Therefore, the grafting structure does not meet the Reinterpretation Principle, and the grafting derivation crashes.

The derivation for the sentence (30a) that includes the grafting process of the relative clause is illustrated in (32) below.

(32) Derivation for (30a)



Here, grafting of *claim* to *which* is not internally interpreted because it is motivated by D-N selection. However, the whole grafting structure (*which claim*) is assigned a *θ*-role by *made*, so that it is externally interpreted by the latter. As a result, the grafting structure satisfies the Reinterpretation Principle. At a later stage of the derivation, *which claim* moves out of the relative clause to function as the external head. This process is achieved in our analysis by creating a new copy of *which claim* and merging it with the relative clause itself. The merge operation of *which claim* and the relative clause is motivated by neither formal features nor semantic features nor selection. Therefore, the process calls for an application of the Predication Rule, which interprets the external head as predicated of by the relative clause. Here as well, the grafting structure, i.e., *which claim*, is interpreted externally by the relative clause.

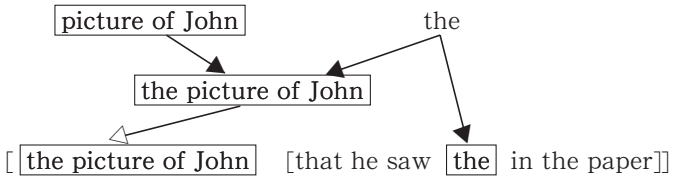
3.4. Relativization vs. *wh*-interrogation

The contrast between relativization and *wh*-interrogation we summarized in (15a,b) is repeated here as (33a, b).

(33) a. the picture of John$_i$ [that he$_i$ saw t in the paper]
b. *which picture of John$_i$ [did he$_i$ see t in the paper] (=(15))

The derivation for the sentence in (33a) may proceed in the following way.

(34) Derivation for (33a)



Grafting of *picture of John* to *the* is externally interpreted when the resulting structure (= *the picture of John*) merges with the relative clause. Notice that the graft contains not an adjunct but a complement, which suggests that the core property of the obviation of the Binding Condition (C) effects does not lie in the argument/adjunct dichotomy. We will return to the topic in Section 4, where more compelling evidence is presented in favor of the direction and hence our framework that has implemented the direction.

Contrary to (33a), the derivation for (33b) cannot converge even if we assume grafting of *picture of John* to *which*, because the grafting structure is neither internally nor externally interpreted. Lack of internal interpretation is due to D-N selection, just as in (34). The merger of the grafting structure and [did he see t in the paper] is motivated by the *wh*-feature on C, so that (i) the Predication Rule is not operative and (ii) semantic interpretation of the grafting structure by the matrix clause is not called for. As a result, the structure violates the Reinterpretation Principle.

3.5. Summary

In our framework, apparent countercyclic/late Merge effects are allowed in configurations where either (i) the "host" is interpreted as subject of the graft by the Predication Rule or (ii) the graft-host complex is interpreted as subject of the sister element of the complex by the Predication Rule or (iii) the graft-host complex is assigned a new θ-role.

4. Some consequences

Let us now consider consequences of our analysis in the domains of long distance *wh*-movement, topicalization, and A-movement.

4.1. Long distance *wh*-movement

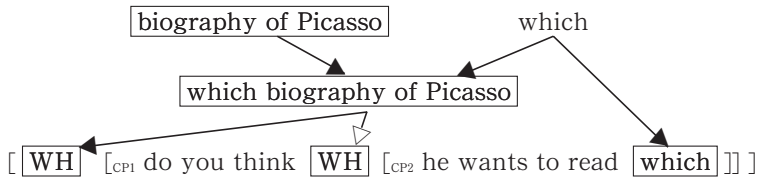
It has been observed by many linguists that complements show apparent counter-

cyclic/late Merge effects in long distance *wh*-movement environments:

(35) a. which biography of Picasso$_i$ do you think [he$_i$ wants to read t]
(Higginbotham (1983))
b. which allegations about John$_i$ do you think [he$_i$ will deny t] (Heycock (1995))
c. ?how many pictures of John$_i$ do yo think [he$_i$ will like t] (Huang (1993))

This phenomenon is exactly what we expect given the standard conception of long distance *wh*-movement as a successive-cyclic operation and our Predication Rule. To take an example, in (35a) the *wh*-phrase moves to the ultimate destination in the matrix Spec-CP by way of the embedded Spec-CP2. Hence, the following derivation is possible, where the original position of *wh*-movement is occupied solely by *which* and its complement *biography of Picasso* is grafted to the *wh*-element just before the latter merges with the embedded CP2.

(36) Derivation for (35a)



Merger of the *wh*-phrase with CP2 is motivated by neither a formal feature nor semantic interpretation; rather, it is due to a requirement to make the *wh*-element visible from phrase-external elements. The relation of the *wh*-phrase and CP2 does not fall under any of selection, formal feature checking, and semantic interpretation. Therefore, the structure may undergo an application of the Predication Rule, which interprets the *wh*-phrase (*which biography of Picasso*) as being predicated of by the clause: *he wants to read which*. Therefore, the grafted structure of *which biography of Picasso* satisfies the Reinterpretation Principle. In this derivation, *he* has not been c-commanded by *Picasso*, so that their coreference interpretation is correctly expected.

The essential part of our analysis of the lack of the Binding Condition (C) effects in sentences like (35a-c) is the intermediate step of long distance *wh*-movement, which creates a structure susceptible to the Predication Rule because it is not motivated by

formal features or semantic features. This analysis predicts that this kind of apparent countercyclic/late Merge effect does not arise if the structure for the crucial intermediate step of long distance *wh*-movement is included within the c-command domain of the relevant pronominal element. This prediction is borne out, as the contrast in the availability of the coreference interpretation of *he* and *John* between (30c) above and (37) below.

(37) *[how many pictures of John$_i$] [$_{CP1}$ does he$_i$ think *WH* [$_{CP2}$ that I like *WH*]
(Huang (1993))

The *wh*-phrase drops by Spec-CP2 on its way to Spec-CP1. In this derivation, grafting is only possible before the *wh*-element merges with CP2; otherwise the structure would fail to be Reinterpreted. Grafting before the intermediate step of long distance *wh*-movement, however, cannot put *John* outside of the c-command domain of *he*. Therefore, coreference interpretation is not available in (37).

4.2. Topicalization

Apparent countercyclic/late Merge effects of arguments are found in topicalization configurations as well. (38a-c) indicate that the R-expressions occupying the complement positions of the topicalized elements do not give rise to a violation of the Binding Condition (C). (39a,b) show that the subjects of topicalized clauses do not, either.

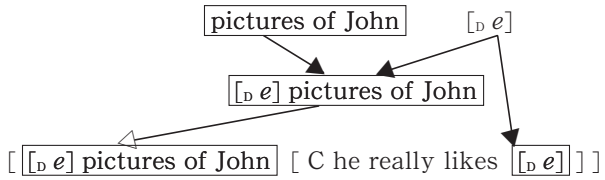
(38) a. pictures of John$_i$, [he$_i$ really likes t] (Lebeaux (1991))
b. most articles about Mary$_i$ [I am sure [she$_i$ hates t]](Safir (1999), Culicover (1997))
c. those allegations about John$_i$, [I think [he$_i$ will deny t]] (Heycock (1995))

(39) a. that Ed$_i$ was under surveillance [he$_i$ never realized t]
(Safir (1999), Postal (1997))
b. that John$_i$ had seen the movie [he$_i$ never admitted t]
(Safir (1999), Culicover (1997))

The derivation for the sentences in (38b, c) involves long distance topicalization, so that the lack of the Binding Condition (C) effects may be attributed to the intermediate step of the movement, just as we saw in long distance *wh*-movement configurations above. However, this approach is insufficient in the cases of (38a) and (39a,b), where topicaliza-

tion is local. According to our system, the lack of the Binding Condition (C) is circumvented only by grafting. Therefore, the derivation for the sentence (38a), for example, should be roughly as follows.

(40) Derivation for (38a)



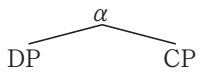
In this derivation, the structure generated by grafting *pictures of John* to [D *e*] cannot satisfy the Reinterpretation Principle in terms of internal interpretation, because there holds a D-N relation between the two. This amounts to saying that the grafting structure is externally interpreted when it merges with the matrix clause [he really likes [D *e*]]. How is it? We would like to answer the question in the following way. Just as *wh*-interrogative sentences are headed by C with a *wh*-feature, topicalization sentences have C with a topic feature. Unlike *wh*-features, which are formal features, topic-features are semantic in nature, requiring application of the Predication Rule:

(41) The head C of topicalization structures has a semantic topic-feature that calls for an application of the Predication Rule.

In (40) above, the merger of the grafting structure [[D *e*] picture of John] and the clause [C he really likes [D *e*]] undergoes the Predication Rule, and hence the grafting structure satisfies the Reinterpretation Principle.

If this analysis is on the right track, we can unify topicalization structures and relativization structures. Take a look at the following tree diagram, where DP and CP merge to project α.

(42)



(the predication)

If H(α) is H(DP), then the whole structure is a complex nominal phrase containing a relative clause. If H(α) is H(CP), then α is a topicalization sentence. The similarity between relative clauses and topicalization is not a new topic at all (see Kuno (1973)), and (42) is our answer to the discussions.

4.3. A-movement

Not only topicalization and long distance *wh*-movement but also A-movement shows apparent countercyclic/late Merge effects of arguments. Consider the following sentence, where *he* can be coreferential with *John*.

(43) those pictures of John$_i$ seem to him$_i$ to be t nice (Lebeaux (1991))

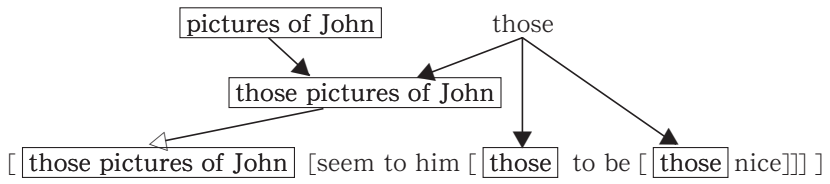
That pronoun *he* in the Theme PP of *seem* does c-command the clausal complement of *seem* is indicated by the unacceptability and acceptability of coreferential interpretation in the sentences (44a,b) and (45a,b), respectively.

(44) a. *it seems to him$_i$ [that John$_i$'s mother is wonderful]
b. *it seems to him$_i$ [that John$_i$ is a nice guy] (Lebeaux (1991))

(45) a. replicants of themselves$_i$ seem to [the boys] $_i$ [to be t ugly] (Johnson (1984))
b. ??parents of [each other]$_i$ seem to them$_i$ [to be t brave] (Huang (1993))

Given the fact that the pronominal complement of *to* c-commands the infinitival complement of *seem*, the derivation for (34) should be something like the following, where the original thematic position of *those pictures of John* is occupied by the D head (*those*) alone and its complement (*pictures of John*) is grafted to the D at a later stage of the derivation when its introduction does not fall into a violation of the Binding Condition (C), namely, just before the D is inserted to the matrix Spec-TP.

(46) Derivation for (43)



Here, grafting of *pictures of John* to *those* does not satisfy the Reinterpretation Principle by means of the option of internal interpretation, because D-N selection holds between the two constituents. The grafting structure must, then, be interpreted externally when it merges with the whole sentence (TP, in our example); otherwise, the structure could not satisfy the Reinterpretation Principle. In order for the element in Spec-TP to be interpreted externally by its sister TP structure, the merge process must have been motivated by neither semantic interpretation/ licensing nor formal feature checking. That a semantically motivated relation does not hold between the two constituents is relatively obvious in the standard framework, but the same does not apply to the possibility of formal feature checking, specifically in light of the treatment of the EPP-feature. If the EPP-feature on T is the motivation of A-movement, then in (46) the grafting structure cannot be externally licensed by TP, and the derivation crashes.

In this light, Chomsky's (2005) recent attempt is noteworthy: various properties T has so far been assumed to have are attributed to C. If EPP-features fall under such a group of properties and hence A-movement is ultimately motivated by C, then movement into Spec-TP is not a process motivated by formal features. Given this, A-movement is motivated neither by semantic requirements nor by formal features. The Predication Rule is, then, applicable, and the grafting structure can be interpreted externally.

There is evidence that suggests that the element in Spec-TP and its sister is semantically reinterpreted by the Predication Rule. It has been pointed out in the literature that the perception construction does not passivize. This is the case in (47a), (48a), and (49a), but not in (50a).

(47) a. we felt something dangerous approaching
b. *something dangerous was felt approaching (Felser (1998))
Cf. =/= we felt something dangerous

(48) a. we saw it snowing
b. *it was seen snowing (ibid.)

(49) a. we heard all hell breaking loose
b. *all hell was heard breaking loose (ibid.)

(50) a. we saw John eating an apple
b. John was seen eating an apple

Let us assume the bare verbal structure for the clausal complement of perception verbs:

(51) a. [feel [$_{VP}$ [something dangerous] approaching]]
b. [see [$_{VP}$ all hell [$_{V'}$ breaking loose]]
c. [see [$_{VP}$ it snowing]]
d. [see [$_{vP}$ John *v* [$_{VP}$ eating an apple]]]

The verb *approach* in (51a) is an unaccuative, which we assume lacks *v*-projections.[5] A similar consideration applies to the idiomatic usage of *break* in (51b) and *snow* in (51c), while *eat* in (51d) is selected by *v*. In (51a-d), the subject of the V-*ing* is semantically licensed by the V-*ing* itself in the first three examples and by *v* in the last. Let me note here that unlike the subject/predicate configuration created in the TP domain, the configuration created in the verbal domain of the perception verb complement does not undergo application of the Predication Rule because of these semantic relations.

Bearing this in mind, let us consider their passivized structures:

(51) [$_{TP}$ α [$_{T'}$ be V-*en* [$_{VP/vP}$ α V-*ing*...]]]

The subject (α) of V-*ing* makes an A-movement to Spec-TP, and undergoes the Predication Rule for the first time in its derivation. α is, then, interpreted as the subject of the predicate: being felt/seen/heard... This interpretation gives rise to gibberish when α is an idiomatic *it* and *all hell* in (51b, c): what was seen and heard, respectively, was not the entity denoted by *it* and *all hell*. Similar semantic inconsistency occurs in the passive version of (51a): the Predication Rule interprets the entity denoted by *something dangerous* as the subject of the predicate *being felt*... The interpretation to be obtained is equivalent to *some dangerous thing was felt*. The interpretation that has been obtained before A-movement and the Predication Rule apply, however, is that the arrival of something was felt. Generally speaking, it seems that given a thing *x*, when *x* is approaching, it is possible to feel its arrival but it is impossible to feel *x* itself. Thus, the passivization of (51a) yields semantically conflicting interpretation. Unlike (51a-c), the structure in (51d) does not lead to semantic gibberish/conflict. This is simply because when we saw John eating an apple, John was in sight, so that application of the Prediction Rule to the passivized structure does not add any semantically conflicting information.

To summarize the discussion briefly, the Predication Rule accounts for the contrast

5 We therefore assume that *something dangerous* in the structure given in (51a) occupies a θ-position of *approaching*.

among (47)-(50), and in this sense these facts give support to the view that the subject/predicate configuration in the domain of TP may undergo the Predication Rule.

One might wonder why the A-moved expletive *there* in the following sentences does not lead to gibberish interpretation, just as idiomatic *it* and *all hell* in (48b) and (49b) above do.

(52) a. there seems to be someone in the house
b. there was believed to be someone in the house

I would like to speculate that this is due to the following nature of the Predication Rule:

(53) The Predication Rule
a. It applies obligatorily if the "prospective" subject has not undergone an application of this rule at a prior stage of the derivation,
b. otherwise, its application is optional.

In both (52a) and (52b), *there* has undergone the Predication Rule at the stage when it is inserted in the Specifier position of the infinitival clause; and hence the application of the rule is optional in the matrix TP domain. In the passivized perception construction, by contrast, application of the Predication Rule in the matrix TP domain is obligatory, because the A-moved subject has not undergone an application of this rule at its original position.

5. Conclusion

This paper has shown that the obviation of the Binding Condition (C) effects in relative clauses, long distance *wh*-movement configurations, topicalization, and A-movement can be systematically accounted for in the framework with the Generalized Copy Theory, the Reinterpretation Principle, and the Predication Rule. Specifically, we argued that given the Generalized Copy Theory, the apparent countercyclic/late Merge configurations are constructed without appealing to real countercyclic/late Merge operations, and that such configurations are allowed not only with adjuncts but also arguments. The apparent contrast between arguments and adjuncts are due to the availability of the Reinterpreta-

tion processes. Adjuncts are always Reinterpreted by the Predication Rule, while arguments are not, their Reinterpretation depending on the configurations they appear.

In this analysis, the importance of the Predication Rule in C_{HL}, especially in the domains of adjunction structures, intermediate steps of long distance movement, and A-movement, has been established. Since these domains are where thematic relations do not in general hold, we hope that the properties of the Predication Rule discussed in the paper makes a new step in the analysis of the nature of the C-I interface conditions.

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関係節形成における主述関係規則と再解釈

富　澤　直　人

関係節構造において束縛条件（C）の効果が消失する現象に対する近年のアプローチは、関係節が統語的に付加詞であることと付加詞が非循環的に導入可能であるという仮説に基づいている。本論文は、(a) 関係節が循環的に導入される要素であることを示す経験的証拠があること、(b) 束縛条件（C）の効果の消失現象は付加詞に限定されるものではなくある一定の条件下では項の中に生じる R 表現でも発生するという経験的証拠があること、さらに、(c) 非循環的規則の採用は計算の効率性という観点から望ましくないアプローチであることを示し、その代案として主に一般化コピー理論と再解釈原理からなる新たな分析を提案する。一般化コピー理論により、従来の外的マージのみならず内的マージ（MOVE）も外的マージ操作に統一化され、その結果として、従来の概念における「非循環的導入」現象に類似した派生が非循環的操作を採用することなく可能となる。このような派生には「つぎ木構造」が内在し、それは意味的再解釈原理を満たさなければならず、その手段としては、主に、意味役割の付与と主述関係解釈がある。関係節構造では主述関係解釈が可能なため、束縛条件（C）の効果が消失する現象が発生することが説明される。この分析によると、長距離 *wh* 移動における中間移動の段階でも主述関係解釈が可能であり、また、話題化構文も主述関係解釈が適応することから、両構文において同様の現象が発生することが説明できる。A 移動においても同様の現象が発生することが観察されており、その原因は Spec-TP への移動が T の素性そのものによって誘発される操作ではないという仮説から説明できることを示す。